



ZERO NET CARBON BY 2050

9TH ANNUAL VIRTUAL STUDENT CONFERENCE

Bringing together graduate students and postdocs from UA, NAU, ASU and Mexico to share their own research, learn about and discuss a broad range of cutting-edge energy research, and network with faculty and industry leaders.

Virtual conference will be held October 28-30, 2020

9am – 11am

Online Registration will begin August 24th

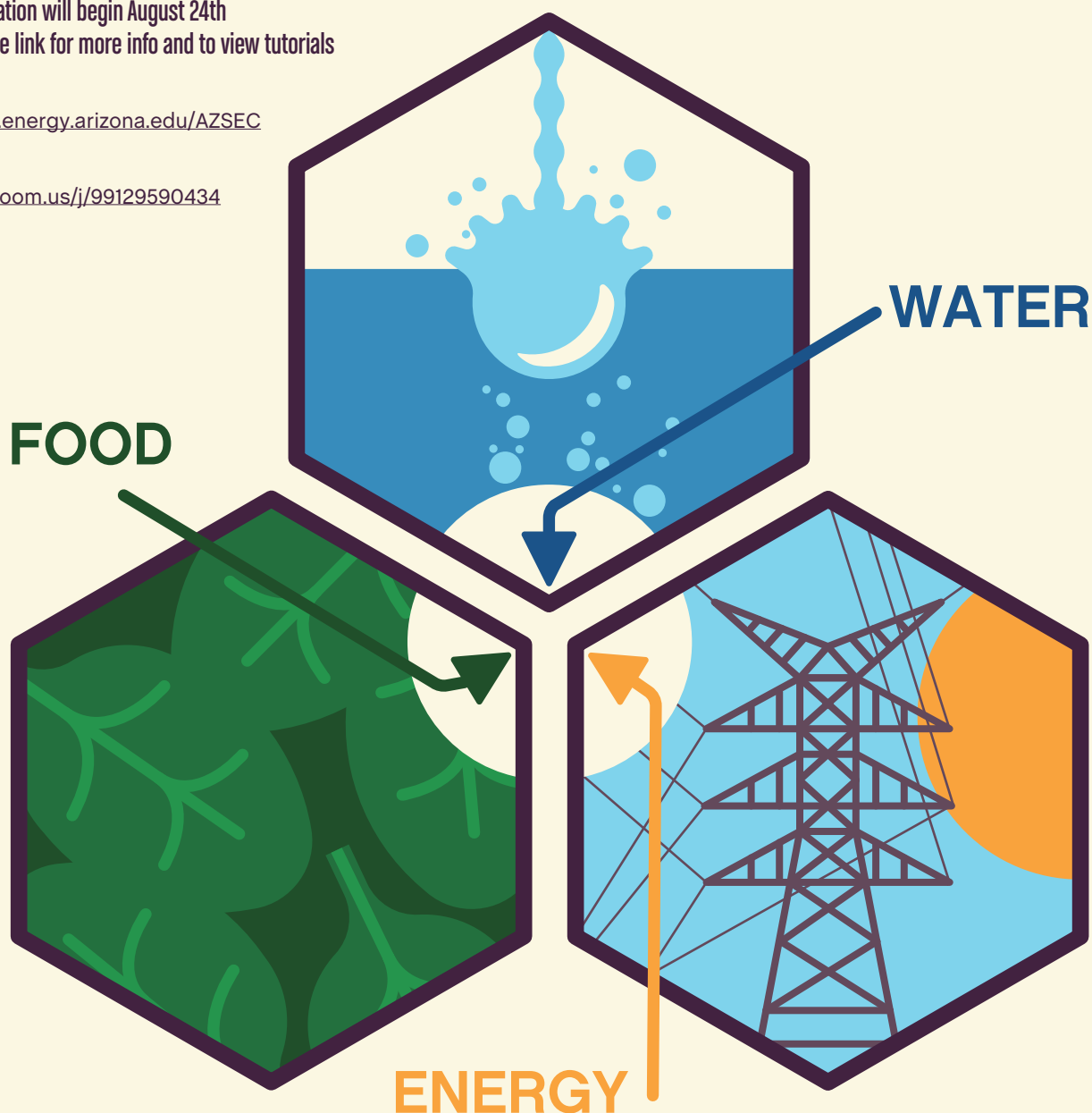
Please visit site link for more info and to view tutorials

SITE LINK:

<https://www.energy.arizona.edu/AZSEC>

ZOOM LINK:

<https://asu.zoom.us/j/99129590434>



RESEARCH, DISCOVERY & INNOVATION

Institute for Energy Solutions

ASU LightWorks
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9th Annual Virtual Graduate Student Conference on Renewable Energy Science, Technology, and Policy at the Energy-Water-Food Nexus

AGENDA

WEDNESDAY, OCTOBER 28 th	
9:00 - 9:15 AM	<p>Welcome remarks</p> <p>Neal Armstrong, PhD; Regents Professor Chemistry/Biochemistry/ Optical Sciences; Associate Vice President Office of Research and Discovery; Interim Director, Institute for Energy Solutions University of Arizona</p> <p>Stephen Goodnick, PhD; Professor of Electrical, Computer and Energy Engineering, Deputy Director, ASU Lightworks®, Arizona State University</p> <p>Tom Acker, PhD; Professor of Mechanical Engineering, Northern Arizona University</p> <p>Gabriel A. Montaño, PhD; Professor, Applied Physics and Materials Science Program; Chief Scientist, Center for Materials Interfaces in Research and Applications, Northern Arizona University</p>
9:15 – 9:45 AM	Keynote Speaker: Katherine Jungjohann, Sandia National Laboratories
9:45 – 10:00 AM	<i>"Electron Microscopy Insight into Li-Metal Battery Failure"</i>
10:00 – 10:15 AM	Q & A Session
10:15 – 11:00 AM	<p>Student Speaker: Chinmey Vad</p> <p><i>"Transitioning from learning about solar to working towards optimizing solar assets"</i></p> <p>Panel Discussion with Ellen Stechel, Zachary Holman, Andrea Achilli, and Charlie Smith</p> <p><i>Moderated by Alex Routhier</i></p>
THURSDAY, OCTOBER 29 th	
9:00 - 9:30 AM	<p>Keynote Speaker, Jeff Guldner, APS</p> <p>Chairman of the Board, President and Chief Executive Officer, Pinnacle West Capital Corp.</p> <p>Chairman of the Board and Chief Executive Officer, Arizona Public Service Company</p> <p><i>"APS's plan for carbon neutrality by 2050"</i></p>
9:30 – 9:45 AM	Q & A Session
9:45 – 10:00 AM	<p>Student Speaker, Alex Dahlmann, PhD</p> <p><i>"Predictive Control of Photovoltaic Systems with Constant Switching Frequency"</i></p>

10:00 – 11:00 AM	Fast Pitches
FRIDAY, OCTOBER 30th	
9:00-9:30 AM	Keynote Speaker – Joseph Berry, NREL Director US-MAP Principle Scientist, Materials Science Halide Perovskite Solar Cell Team Lead <i>“Metal Halide Perovskites: Manufacturing Magic for Photovoltaics and the Next Big Thing”</i>
9:30-9:45 AM	Q&A
9:45-10:45 AM	Fast pitches
10:45 - 11:00 AM	Closing remarks

Keynote Speaker Biographies



Katherine Jungjohann

Katherine Jungjohann received her doctoral degree in Materials Science and Engineering from the University of California, Davis in 2012. Her topic of study was on the imaging and growth of nanostructures in liquid using high-resolution in-situ scanning/transmission electron microscopy. She completed a Postdoctoral Fellowship at the Center for Functional Nanomaterials at Brookhaven National Laboratory, continuing on imaging the formation of bimetallic nanoparticle catalysts. Since 2013, she has been a staff member at the Center for Integrated Nanotechnologies (CINT) at Sandia National Laboratories with current research interests in energy storage materials, corrosion, nanoparticle assembly, and the coupled mechanical-environmental properties of nanoscale materials. Since 2019, she has led the *In-situ Characterization and Nanomechanics* thrust within CINT. In 2016-2017 she served on the Early Career Advisory Board for Nano Letters. Currently, she serves as the leader of the Microscopy Society of America’s Focused Interest Group on *Electron Microscopy in Liquids and Gases*.



Jeffrey B. Guldner

Chairman of the Board, President and Chief Executive Officer, Pinnacle West Capital Corp.
Chairman of the Board and Chief Executive Officer, Arizona Public Service Company

Jeff Guldner leads Pinnacle West Capital Corporation and its primary subsidiary, Arizona Public Service Company (APS). The companies are headquartered in Phoenix.

APS employs more than 6,000 people and serves nearly 1.3 million customers across Arizona. The company is among the nation’s top utilities for delivering clean and reliable energy to its customers and has announced an ambitious commitment to deliver 100% clean, carbon-free electricity to customers by 2050. APS operates the Palo Verde Generating Station, the nation’s largest energy producer—all of it carbon-free and ranks among the top five investor-owned utilities for solar energy capacity.

Guldner was promoted to his current position in November 2019 from his dual roles as president of APS and executive vice president, public policy of Pinnacle West. Since joining APS in 2004, Guldner has held a number of leadership positions responsible for areas including legal, rates and regulation, government affairs and customer service. Prior to APS, Guldner was a partner in the Phoenix office of Snell & Wilmer LLP, where he practiced public utility, telecommunications and energy law. Before practicing law, Guldner served as a surface warfare officer in the United States Navy and was an assistant professor of naval history at the University of Washington.

Guldner is dedicated to community involvement and actively serves on boards of directors, including the Greater Phoenix Economic Council, the Partnership for Economic Innovation, the National Association of Manufacturers and Arizona Theatre Company. He is chair of the East Valley Partnership board of directors.

He earned a Bachelor of Arts degree from the University of Iowa and graduated *magna cum laude* from the Arizona State University College of Law. Guldner also completed the Reactor Technology Course at the Massachusetts Institute of Technology and the Advanced Management Program at Columbia Business School.

Joseph Berry



Joseph Berry (@joe_jberry) is a principle scientist at the National Renewable Energy Laboratory (NREL). He is a graduate of the Penn State Department of Physics, receiving his PhD for work on spin physics of magnetic II-VI, III-V and hybrid metallic/semiconductor systems. After his PhD work, he was awarded a National Research Council Fellowship at the National Institute of Standards and Technology (NIST/JILA), where he worked on the development and application of high-resolution spectroscopic techniques to solid-state electro-optical systems, including self-assembled quantum dots and related nanostructures. Since joining NREL he has worked on a range of next generation optoelectronic materials and devices with an emphasis on relating basic interfacial properties to device level performance (i.e. efficiency and stability). His research interests have led to his current work as team lead on the metal halide perovskite solar cells systems, a next generation technology of considerable interest.

Panel Speakers

Ellen Stechel



Ellen B. Stechel is Co-Director, ASU LightWorks®; Professor of Practice, School of Molecular Sciences; Senior Sustainability Scientist, Julie Ann Wrigley Global Institute of Sustainability at Arizona State University (ASU;) and Fellow of the Institute for the Future of Innovation in Society. She received her PhD in Chemical Physics in 1978 from the University of Chicago, Chicago, IL. Her career has afforded her opportunities to build and/or coordinate research programs at a national laboratory, industry, a U.S. government agency, and now in higher education at ASU; in both basic and applied research; policy and commercialization of emerging technologies; and in multi-disciplinary R&D strategy and management. She has held and holds numerous positions of an advisory or editorial capacity nationally and internationally and has published >100 peer reviewed articles. Her current research focuses on materials and systems design for solar technologies for producing sustainable liquid hydrocarbons from carbon dioxide, hydrogen from advanced water splitting, clean water, renewable ammonia, and for thermochemical and chemical energy storage.

Zachary Holman



Zachary Holman is an Associate Professor in the School of Electrical, Computer, and Energy Engineering at Arizona State University, as well as the Director of Faculty Entrepreneurship within the Fulton Schools of Engineering. He received his Ph.D. in Mechanical Engineering from the University of Minnesota for his work on plasma-synthesized silicon and germanium nanocrystals, after which he spent two years as a postdoctoral researcher developing high-efficiency silicon solar cells at Ecole Polytechnique Fédérale de Lausanne in Switzerland. His research group at ASU focuses on new materials, processes, and device designs for high-efficiency silicon solar cells and silicon-based tandem solar cells. He has been named a Moore Inventor Fellow, Trustees of ASU Professor, Fulton Entrepreneurial Professor, and Joseph C. Palais Distinguished Faculty Scholar, and he is the co-founder of an advanced materials start-up company, Swift Coat.

Andrea Achilli



Andrea Achilli is an Assistant Professor in the Chemical and Environmental Engineering Department at the University of Arizona and affiliated faculty at the UA Water and Energy Sustainable Technology (WEST) Center. He received a PhD in Civil and Environmental Engineering from the University of Nevada, Reno where he developed the osmotic membrane bioreactor and investigated pressure retarded osmosis. He has 15 years of research experience in membrane processes for desalination and water reuse, including membrane distillation and energy recovery. His research focuses on process integration and energy aspects in water and wastewater treatments. Dr. Achilli is the PI or Co-PI of several funded research projects for membrane contactor processes and hybrid systems for desalination and water reuse. Current funding sources include the Bureau of Reclamation, the Electric Power Research Institute (EPRI), the Department of Energy RAPID program, and the Department of Defense ESTCP program.

Student Speakers



Chinmay Vad

Chinmay Vad has completed his Masters in Electrical Engineering degree from Arizona State University specializing in PV systems. After finishing his undergraduate degree in Electronics Engineering from University of Mumbai, India, he worked as a field engineer for a local utility. Currently, Chinmay has been working as a Performance Engineer for Arevon, an asset management affiliate of Capital Dynamics which is a global private equity firm. His role involves providing technical assistance towards development of PV and PV+S projects while managing the performance of around 4.5 GW of operational solar assets.



Alex Dahlmann

Alexander Dahlmann received his master's degree in electrical engineering from Northern Arizona University, Flagstaff, Arizona, USA in 2020 specializing in Modulated predictive control of photovoltaic systems. He is currently working towards his Ph.D. degree in informatics at the School of Informatics, Computing, and Cyber Systems (SICCS), Northern Arizona University, Flagstaff, Arizona, USA. His research interests include renewable energy, high-power converters, and model predictive control.